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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/782,621      | 02/18/2004  | Zhiguo Xiao          | CCPIT-7             | 5095             |

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FISH & NEAVE IP GROUP  
ROPES & GRAY LLP  
1251 AVENUE OF THE AMERICAS FL C3  
NEW YORK, NY 10020-1105

EXAMINER

KOSLOW, CAROL M

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

1755

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/782,621             | XIAO ET AL.         |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | C. Melissa Koslow      | 1755                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                                            |                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/18/05</u> | 6) <input type="checkbox"/> Other: ____                                                |

The Chinese references cited in the Information Disclosure Statement of 18 April 2005 have been considered with respect to the provided English abstracts and the discussions of these references in the specification.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is no teaching in the specification of the claimed aluminate glass in claim 1. There is no teaching in the specification of the first clarified step and that the molten glass is homogenized which is found in claim 14. The process on page 10 refers to the fusion of the glass, but this only refers to the melting step and does not imply the claimed homogenization and clarifying steps.

The disclosure is objected to because of the following informalities: The specification used the term "glass metal". It is unclear as to the meaning of this term. Page 10, line 6 teaches "clarified", but is unclear what is meant by this term. Appropriate correction is required.

Claims 1 and 13 are objected to because of the following informalities: The definition of the matrix glass in claim 1 should be rewritten either in alternative language or using the Markush format. The reference to the glass blower should be deleted since it unduly limits the process and is not necessary to describe the process of making the glass. Appropriate correction is required.

Claim 11 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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The process in this claim is different from the processes in the specification. The claim teaches all the components are mixed and melts, while the specification teaches melting the glass and then adding the luminescent material or mixing glass particles and the luminescent material and it teaches the luminescent material is not melted during the processes. This discrepancy needs to be corrected.

Claims 1, 3, 10, and 12-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite since it unclear what are the compositions of "common silicate glass" and "conventional borate glass". Claim 3 recites the limitation "the main chemical formula". There is insufficient antecedent basis for this limitation in the claim or in claim 2. Claim 10 recites the limitation "the conventional silicate glass". There is insufficient antecedent basis for this limitation in the claim or in claim 1. Claims 12-15 are indefinite since these processes are different from that in claim 11. Claim 11 requires all the components to be mixed and melted, but the processes of claims 12-14 teaches melting the glass and then adding the luminescent material and claim 15 teaches mixing glass particles and the luminescent material. Claim 14 is indefinite since the amount of phosphor added is greater than that in claim 1 and it is unclear what is meant by "clarified" and "glass metal".

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 1 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 09-77533.

The reference teaches making a luminescent glass by mixing about 9% of a multiple ion activated self-luminescent material having a size of 200 mesh with about 91 wt% of common silicate or crystal glass powder and then heat treating the mixture at 1100°C. The reference teaches the claimed glass and process.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7 and 15 rejected under 35 U.S.C. 103(a) as being unpatentable over JP 10-273657.

This reference teaches a luminescent glass comprising 35-95 wt% of a luminescent powder having a size of 5-50 microns. The taught size and amounts overlap the claimed ranges. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The glass can be aluminate glass, phosphate glass or soda-lime silicate glass. The glass is produced by mixing low melting glass frit, which is known to be produced by melt, cooling and crushing, and the luminescent powder and heat treating the mixture at about 800°C. The exemplified luminescent material is europium and dysprosium activated ulmin acid strontium, which is also known as strontium aluminate having the formula  $\text{SrAl}_2\text{O}_4$ . It is known

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that the amount of europium and dysprosium activator in strontium aluminates having the formula  $\text{SrAl}_2\text{O}_4$  is 0.0001-0.1 and 0.00001-0.1 respectively, as shown by 5,424,006. These amounts overlap the claimed amounts. The reference suggests the claimed glass and process.

Claims 1, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 09-77533.

This reference teaches a luminescent glass by mixing of a multiple ion activated self-luminescent material having a size of 200 mesh with a common silicate or crystal glass melt and a glass blower forms and shapes the resulting mixture at 900-1000°C. While the example in paragraph [0041] teaches the amount of luminescent material is 50 wt%, the teachings in the rest of the reference implies that the amount of luminescent material can be in the range of about 9 up to 50 wt%. This range overlaps the claimed range. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The reference suggests the claimed glass and processes.

Claims 1, 4, 9, 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 4,963,441 in view of U.S. patent 6,071,432.

U.S. patent 4,963,441 teaches a light-storage glaze comprising 20-80 wt% of a sulfide type light-storage luminescent material having a particle size of 5-500 microns and 80-20 wt% of a low melting point glass whose composition overlap that claimed. The taught light-storage luminescent material particle size overlaps the claimed range. Product claims with numerical ranges which overlap prior art ranges were held to have been obvious under 35 USC 103. *In re*

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*Wertheim* 191 USPQ 90 (CCPA 1976); *In re Malagari* 182 USPQ 549 (CCPA 1974); *In re Fields* 134 USPQ 242 (CCPA 1962); *In re Nehrenberg* 126 USPQ 383 (CCPA 1960). The glaze is produced by mixing the light-storage luminescent material and glass powder and heat treating the mixture at about 650-1100°C, which overlaps the claimed temperature range. The light-storage luminescent material can be any known sulfide type light-storage luminescent material. U.S. patent 6,071,432 teaches  $\text{SrS:xEu,yM}$ , where M can be Dy, Er or Tm, x is 0.0001-0.02 and y is 0.00005-0.05, which is a sulfide type light-storage luminescent material. One of ordinary skill in the art would have found it obvious to use the sulfide type light-storage luminescent material of U.S. patent 6,071,432 as the sulfide type light-storage luminescent material in the glaze of U.S. patent 4,963,441. The references suggest the claimed glass and process.

Claims 1-10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. patent 6,197,712 in view of U.S. patents 5,839,718; 6,071,432; 6,617,781; 5,424,006 and 6,431,236.

U.S. patent 6,197,712 teaches a light storage self luminescent glass comprising 2-40 wt% light storage self luminescent material having a particle size of 18-25 microns and a common soda-lime silicate glass. The taught glass composition overlaps that claimed. The glass is produced by melting the glass, clarifying the glass to remove gas bubbles adding the light storage self luminescent material and heat treating and shaping the mixture at 1750-2000°F (about 954-1093°C). While the reference does not teach clarifying after mixing, one of ordinary skill in the art would have found it obvious to perform this step to remove any gas bubbles which would impair the look of the final product. From the teachings in U.S. patent 6,197,712, it is clear that the light storage self luminescent material can be any known light storage self luminescent

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material that does not melt or is destroyed in the range of about 954-1093°C. U.S. patents 5,839,718; 6,071,432; 6,617,781; 5,424,006 and 6,431,236 (col. 4, lines 22-25) teach light storage self luminescent materials which are not melted or destroyed in the range of about 954-1093°C. Accordingly, one of ordinary skill in the art would have found it obvious to use of the storage self luminescent materials of U.S. patents 5,839,718; 6,071,432; 6,617,781; 5,424,006 and 6,431,236 (col. 4, lines 22-25) as the light storage self luminescent material of U.S. patent 6,197,712. The reference suggests the claimed glass and processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cmk  
August 5, 2005

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C. Melissa Koslow  
Primary Examiner  
Tech. Center 1700